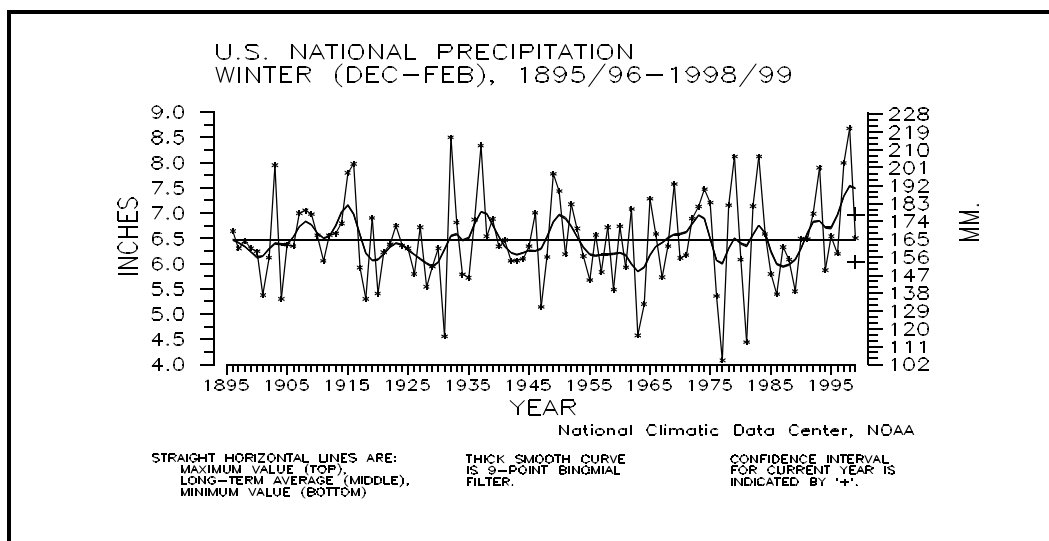
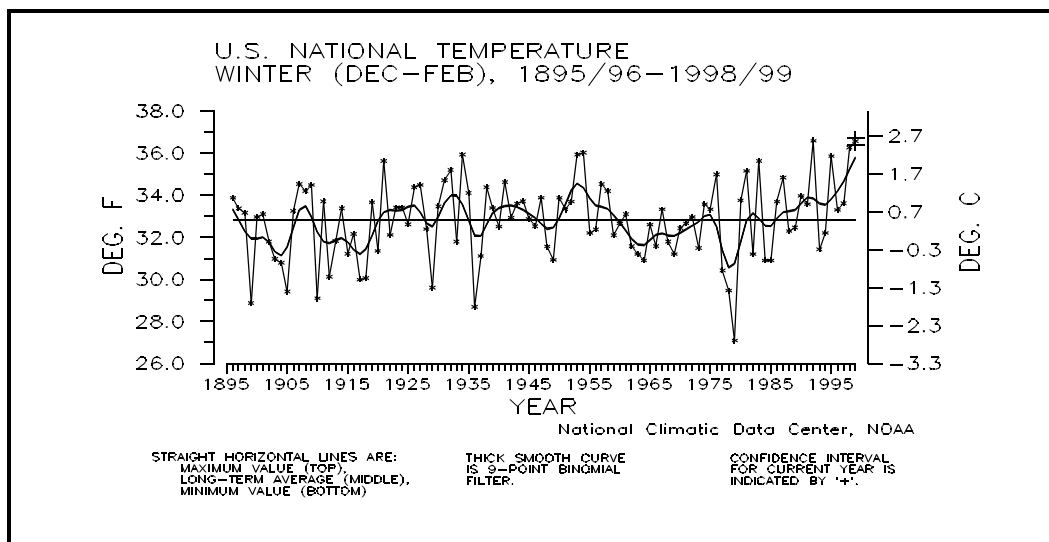


CLIMATE VARIATIONS BULLETIN



This CLIMATE VARIATIONS BULLETIN (CVB) is a preliminary report that puts current monthly climate anomalies into historical perspective using climate databases archived at the National Climatic Data Center (NCDC). It is issued on a monthly basis. Supplemental sections are included which address seasonal and annual perspectives, when appropriate.

Current data are based on preliminary reports from River Forecast Center stations and First and Second Order airport stations obtained from the National Weather Service (NWS) Climate Prediction Center. **THE CURRENT DATA SHOULD BE USED WITH CAUTION.** These preliminary data are useful for estimating how current anomalies compare to the historical record, however the actual values and rankings for the current year will change as the final data arrive at NCDC and are processed.

The following NCDC datasets are used for the historical data: the climate division drought database (TD-9640), and the hurricane datasets (TD-9636 and TD-9697). It should be noted that the climate division drought database consists of monthly data for 344 climate divisions in the contiguous United States. These divisional values are calculated from the 6000+ station Cooperative Observer network.

If you are a climate researcher and would like to order copies of the historical datasets used to make graphs of the type in this report, call 828-271-4994 or fax a letter to 828-271-4876 or mail a letter to the address given below, ATTN: Research User Services.

All other questions or requests for data should be made by calling 828-271-4800 or sending a fax to 828-271-4876 or by writing to:

National Climatic Data Center, NOAA
Federal Building
151 Patton Avenue, Room 120
Asheville, NC 28801-5001

If you use any of the information from this CVB, please identify "National Climatic Data Center, NOAA" as the source.

UNITED STATES FEBRUARY AND WINTER CLIMATE IN HISTORICAL PERSPECTIVE

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- Table 1. Regional and National Precipitation and Temperature Ranks for February 1999
- Table 2. Regional and National Extremes, 1961-1990 Normals, and 1999 Values for February
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TABLE 1. PRECIPITATION AND TEMPERATURE RANKS, BASED
ON THE PERIOD 1895-1999. 1 = DRIEST/COLDEST,
105 = WETTEST/WARMEST FOR FEBRUARY 1999,
105 = WETTEST/WARMEST FOR JAN-FEB 1999,
104 = WETTEST/WARMEST FOR SEP 1998-FEB 1999,
104 = WETTEST/WARMEST FOR MAR 1998-FEB 1999.

REGION	FEB 1999	JAN-FEB 1999	SEP 1998- FEB 1999	MAR 1998- FEB 1999
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PRECIPITATION:				
NORTHEAST	40	96	25	70
EAST NORTH CENTRAL	29	67	54	75
CENTRAL	51	89	56	93
SOUTHEAST	13	46	54	40
WEST NORTH CENTRAL	64	74	100	100
SOUTH	4	40	89	36
SOUTHWEST	18	11	51	55
NORTHWEST	101	103	99	101
WEST	76	69	61	85
NATIONAL	30	81	81	88
TEMPERATURE:				
NORTHEAST	94	86	100	103
EAST NORTH CENTRAL	100	95	103	103
CENTRAL	97	91	103	100
SOUTHEAST	76	83	101	101
WEST NORTH CENTRAL	101	99	103	99
SOUTH	101	103	103	104
SOUTHWEST	92	101	101	96
NORTHWEST	67	86	93	98
WEST	57	81	62	37
NATIONAL	100	103	104	104

TABLE 2. EXTREMES, 1961-90 NORMALS, AND 1999 VALUES FOR FEBRUARY. IT SHOULD BE NOTED THAT THE 1999 VALUES WILL CHANGE WHEN THE FINAL DATA ARE PROCESSED.

REGION	PRECIPITATION (INCHES)				NORMAL PCPN	1999 PCPN
	DRIEST VALUE	YEAR	WETTEST VALUE	YEAR		
NORTHEAST	.70	1987	5.43	1900	2.65	2.43
EAST NORTH CENTRAL	.31	1987	2.40	1922	.95	.74
CENTRAL	.67	1947	5.46	1909	2.64	2.51
SOUTHEAST	1.36	1898	7.45	1998	4.15	2.13
WEST NORTH CENTRAL	.30	1985	1.07	1936	.55	.65
SOUTH	.66	1916	5.63	1903	2.30	.76
SOUTHWEST	.14	1972	2.07	1980	.80	.38
NORTHWEST	.69	1920	5.95	1904	2.86	5.45
WEST	.21	1964	7.57	1998	2.27	3.41
NATIONAL	.96	1947	3.20	1998	1.98	1.72*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .15 INCHES

REGION	TEMPERATURE (DEGREES F)				NORMAL TEMP	1999 TEMP
	COLDEST VALUE	YEAR	WARMEST VALUE	YEAR		
NORTHEAST	11.6	1934	31.8	1998	23.3	28.4
EAST NORTH CENTRAL	1.1	1936	31.6	1998	17.6	27.6
CENTRAL	20.6	1978	41.8	1930	32.2	39.5
SOUTHEAST	37.8	1895	56.4	1927	47.1	50.5
WEST NORTH CENTRAL	2.7	1936	34.5	1954	22.2	30.8
SOUTH	33.7	1905	53.5	1930	45.2	53.2
SOUTHWEST	25.1	1903	42.8	1995	35.9	39.5
NORTHWEST	23.3	1933	39.7	1963	33.5	34.1
WEST	32.6	1903	48.8	1963	42.7	42.8
NATIONAL	26.3	1899	42.1	1954	34.3	40.0*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .3 DEG. F.

TABLE 3. TEMPERATURE AND PRECIPITATION RANKINGS FOR DEC 1998-
FEB 1999, BASED ON THE PERIOD 1895-96 TO 1998-99.
1 = DRIEST/COLDEST, 104 = WETTEST/WARMEST.

REGION -----	PRECIPITATION -----	TEMPERATURE -----
NORTHEAST	65	96
EAST NORTH CENTRAL	38	96
CENTRAL	83	98
SOUTHEAST	39	93
WEST NORTH CENTRAL	80	97
SOUTH	42	101
SOUTHWEST	6	97
NORTHWEST	99	78
WEST	47	68
NATIONAL	58	103

TABLE 4. EXTREMES, 1961-90 NORMALS, AND 1998-99 VALUES FOR WINTER

REGION	PRECIPITATION (INCHES)				NORMAL PCPN	1999 PCPN
	DRIEST VALUE	YEAR	WETTEST VALUE	YEAR		
NORTHEAST	4.56	1980	13.97	1979	8.94	9.35
EAST NORTH CENTRAL	1.61	1931	5.55	1969	3.50	3.12
CENTRAL	4.24	1963	17.30	1950	8.60	10.42
SOUTHEAST	5.77	1938	19.56	1998	12.15	10.95
WEST NORTH CENTRAL	.84	1931	2.90	1969	1.81	2.06
SOUTH	3.57	1918	13.12	1932	6.88	6.42
SOUTHWEST	.93	1904	6.53	1993	2.58	1.28
NORTHWEST	3.86	1977	15.73	1965	10.69	14.60
WEST	2.52	1977	15.87	1969	7.18	7.02
NATIONAL	4.08	1977	8.68	1998	6.35	6.50*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .47 INCHES

REGION	TEMPERATURE (DEGREES F)				NORMAL TEMP	1999 TEMP
	COLDEST VALUE	YEAR	WARMEST VALUE	YEAR		
NORTHEAST	16.6	1918	30.7	1932	23.7	28.1
EAST NORTH CENTRAL	8.4	1936	26.2	1998	16.4	22.4
CENTRAL	23.9	1978	40.8	1932	31.1	36.3
SOUTHEAST	41.2	1978	55.5	1932	46.2	50.6
WEST NORTH CENTRAL	9.5	1979	27.6	1992	19.4	25.0
SOUTH	38.0	1905	48.6	1952	43.1	48.2
SOUTHWEST	27.3	1933	38.4	1981	33.2	36.3
NORTHWEST	21.7	1949	37.2	1934	30.5	32.2
WEST	31.7	1949	43.9	1981	39.9	40.6
NATIONAL	27.1	1979	36.6	1992	32.3	36.6*

* PRELIMINARY VALUE, CONFIDENCE
INTERVAL + OR - .2 DEG. F.

TABLE 5.

STATISTICS FOR SELECTED RIVER BASINS: PRECIPITATION RANKING FOR OCT-FEB 1998-99, WHERE RANK OF 1 = DRIEST, 104 = WETTEST, BASED ON THE PERIOD 1895 TO 1999, AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) DROUGHT, AND AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) WET CONDITIONS, AS OF FEBRUARY 1999. RIVER BASIN REGIONS AS DEFINED BY THE U.S. WATER RESOURCES COUNCIL.

RIVER BASIN -----	PRECIPITATION RANK -----	% AREA DRY -----	% AREA WET -----
MISSOURI BASIN	104	.0%	42.8%
PACIFIC NORTHWEST BASIN	99	.0%	48.7%
CALIFORNIA RIVER BASIN	56	.0%	62.4%
GREAT BASIN	41	.0%	73.7%
UPPER COLORADO BASIN	62	.0%	.0%
LOWER COLORADO BASIN	26	.0%	.0%
RIO GRANDE BASIN	60	18.3%	3.9%
ARKANSAS-WHITE-RED BASIN	100	.0%	8.7%
TEXAS GULF COAST BASIN	86	19.4%	.0%
SOURIS-RED-RAINY BASIN	104	.0%	56.0%
UPPER MISSISSIPPI BASIN	89	4.8%	6.8%
LOWER MISSISSIPPI BASIN	50	12.1%	.0%
GREAT LAKES BASIN	33	26.5%	.0%
OHIO RIVER BASIN	58	.4%	.0%
TENNESSEE RIVER BASIN	63	.0%	.0%
NEW ENGLAND BASIN	64	.0%	7.7%
MID-ATLANTIC BASIN	31	21.2%	5.3%
SOUTH ATLANTIC-GULF BASIN	23	2.9%	.0%

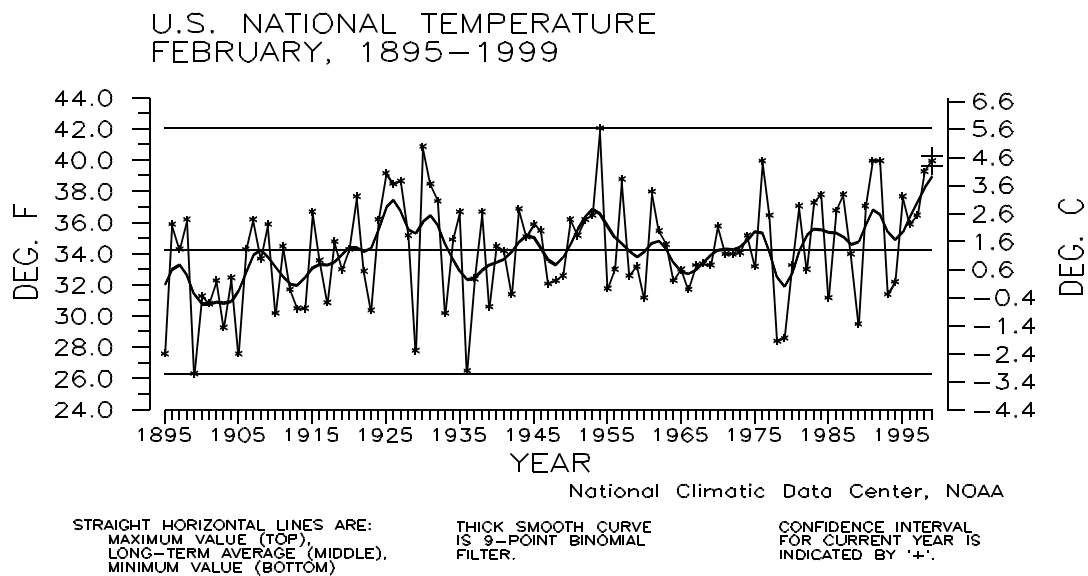


Figure 1: Preliminary data for February 1999 indicate that temperature averaged across the contiguous United States was much above the long-term mean. February 1999 tied with 1976, 1991, and 1992 as the third warmest February since 1895. Over 48% of the country was much warmer than normal while about one percent of the country was much cooler than normal.

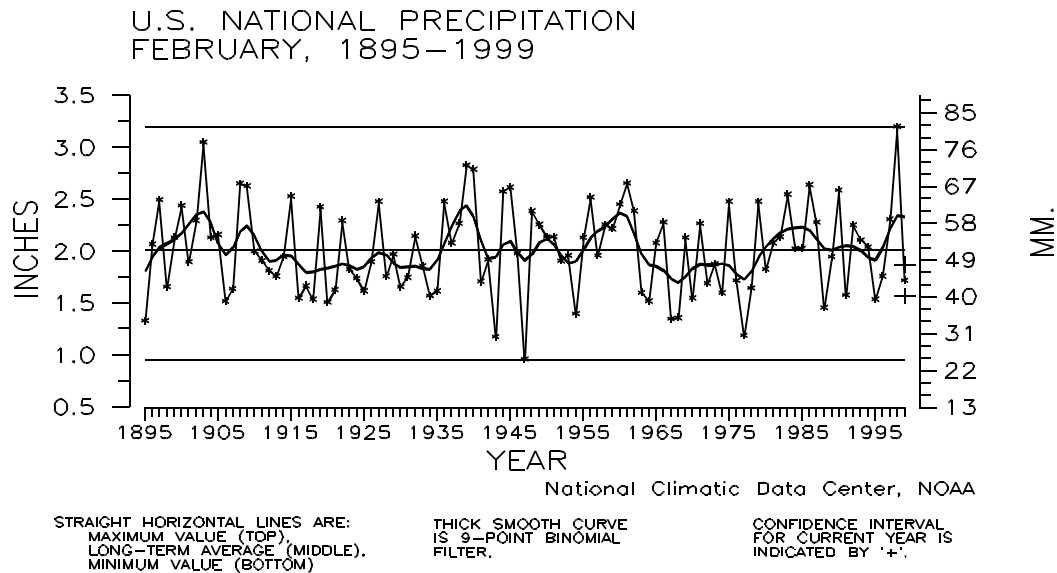


Figure 2: February 1999 was the 30th driest such month since 1895 and contrasts sharply with the wet conditions of February last year. Over 24% of the country experienced much drier than normal conditions while about nine percent of the country was much wetter than normal.

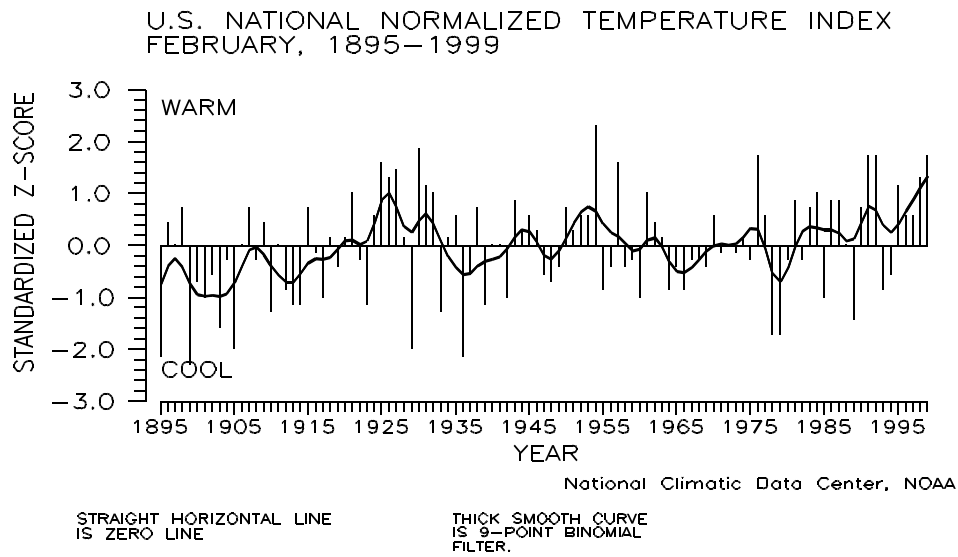


Figure 3: The preliminary national standardized temperature index ranked February 1999 as the third warmest such month on record.

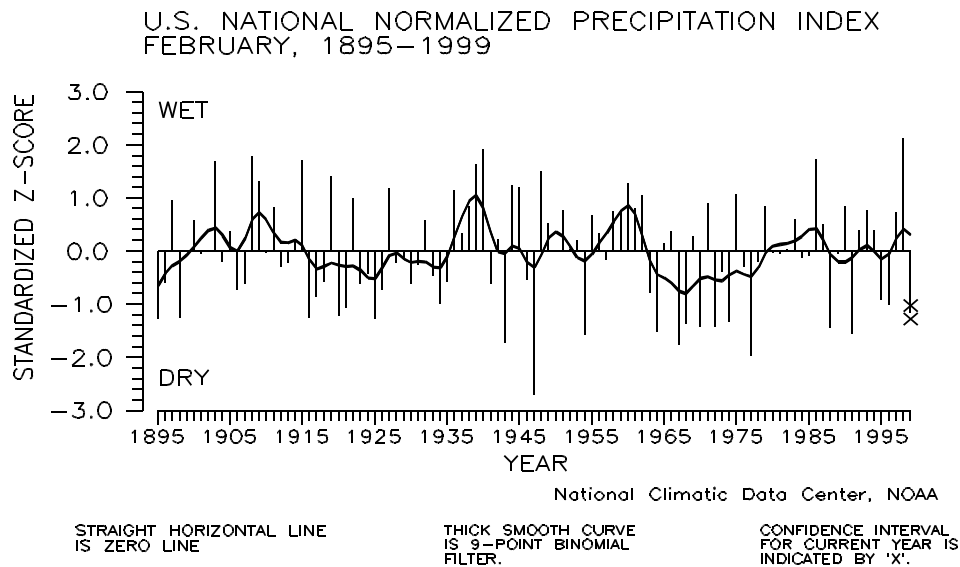


Figure 4: The preliminary national standardized precipitation index ranked February 1999 as the 30th driest such month on record. This standardized z-score is estimated to be accurate to within 0.122 index units.

U.S. NATIONAL TEMPERATURE WINTER (DEC-FEB), 1895/96-1998/99

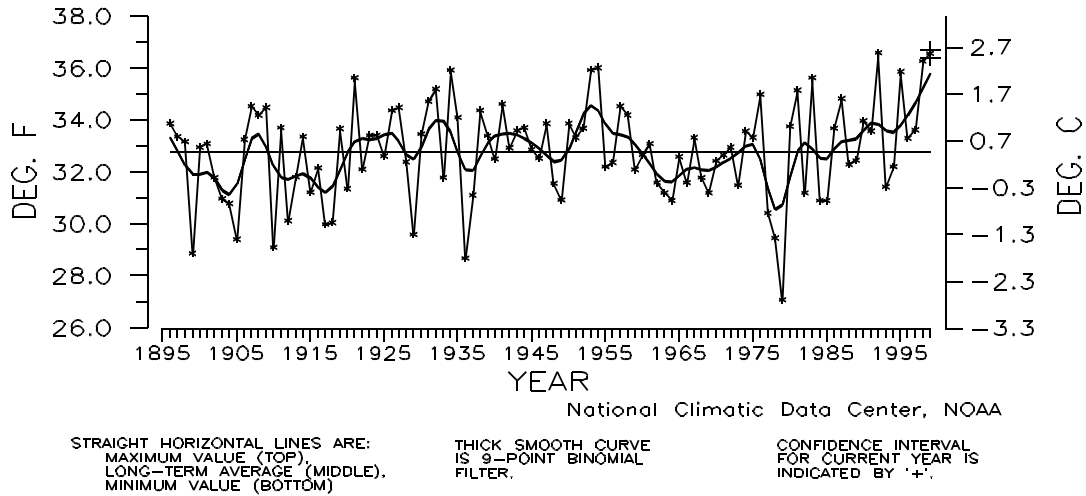


Figure 5: Preliminary data indicate that Winter (Dec-Feb) 1998/99 temperature averaged across the contiguous United States was much above the long-term mean ranking as the second warmest such season since 1895. The warmest Winter season on record was December 1991-February 1992. Over 53% of the country averaged much warmer than normal while about one percent of the country averaged much cooler than normal. The last five winters have been above- to much-above the long-term mean.

U.S. NATIONAL PRECIPITATION WINTER (DEC-FEB), 1895/96-1998/99

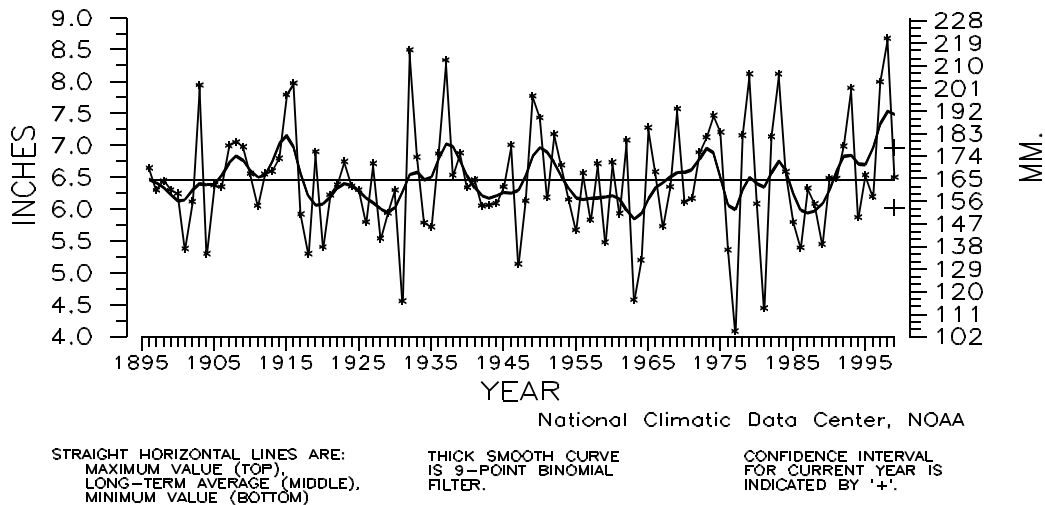


Figure 6: Preliminary data for Winter (December-February) 1998/99 indicate precipitation averaged across the contiguous United States was at the long-term mean ranking as the 47th wettest such season since 1895. Over eight percent of the country was much wetter than normal for this period while about 14% of the country was much drier than normal.

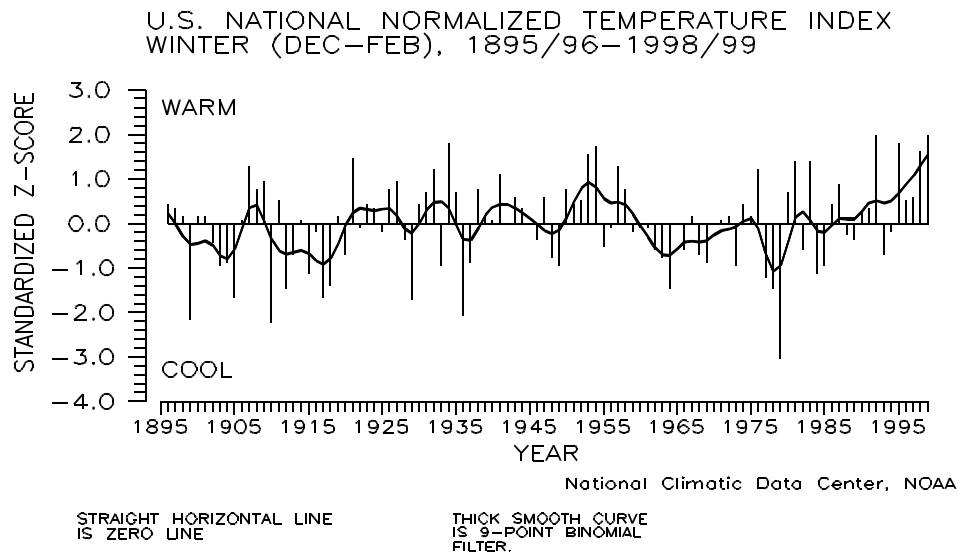


Figure 7: The preliminary national standardized temperature index ranked Winter 1998/99 as the second warmest such season since records began in 1895.

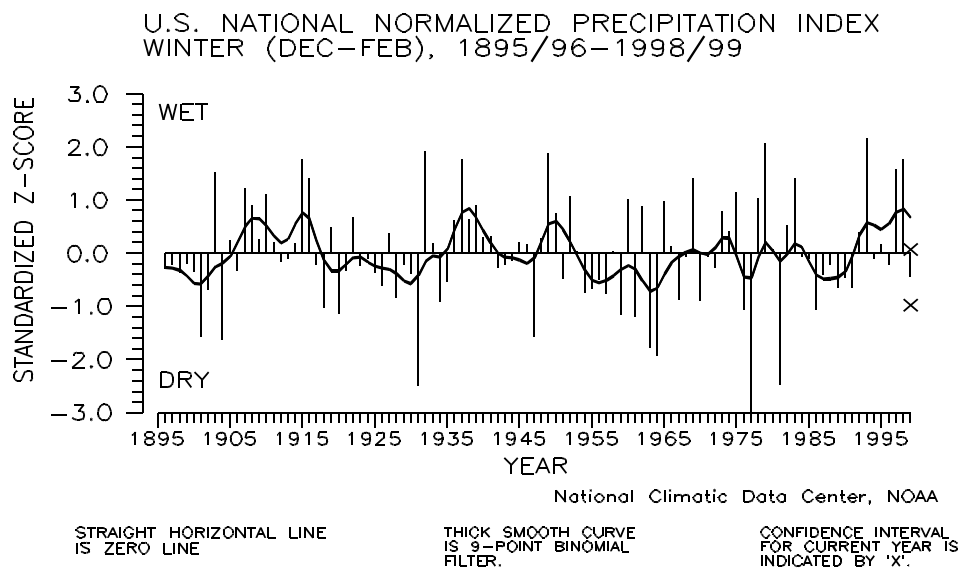


Figure 8: The preliminary national standardized precipitation index ranked Winter 1998/99 as the 47th wettest such season since records began in 1895. This standardized z-score is estimated to be accurate to within 0.516 index units.

U.S. PERCENT AREA DRY AND WET JANUARY 1995 THROUGH FEBRUARY 1999

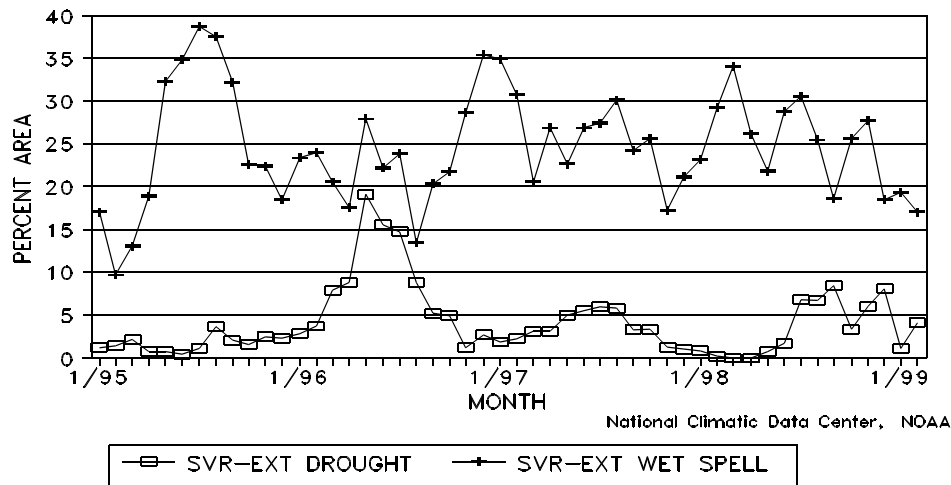


Figure 9: Long-term drought coverage (as measured by the Palmer Drought Index) showed a slight rise over January, with February 1999 having about four percent of the country in severe to extreme drought. The percent area of the country experiencing severe to extreme wetness dropped to about 17%. The core dry areas included portions of the mid-Atlantic region and central Florida. The core wet areas included the Pacific Northwest, northern Rockies and northern Plains.

PRIMARY HARD RED WINTER WHEAT BELT PRECIPITATION OCTOBER–FEBRUARY, 1895–96/1998–99

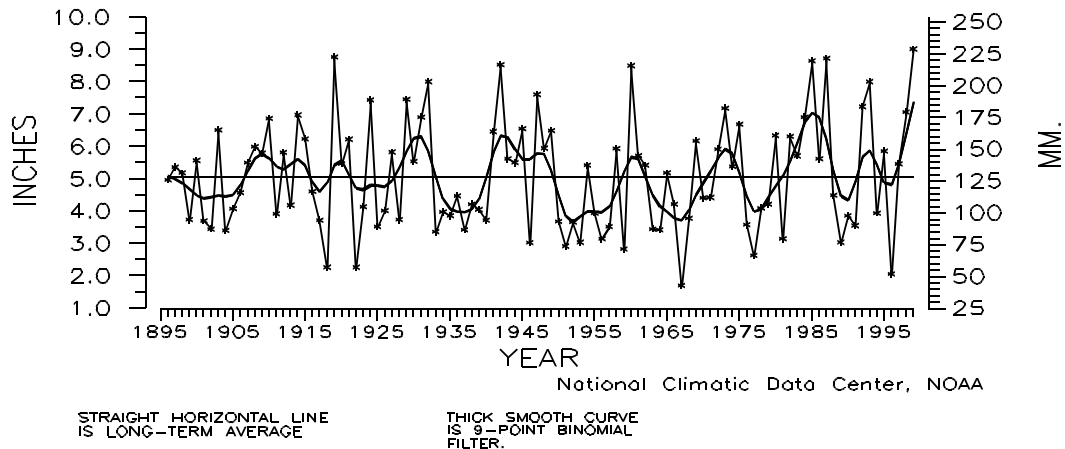


Figure 10: Preliminary data indicate that precipitation averaged across the Primary Hard Red Winter Wheat agricultural belt was much above the long-term mean and ranks as the wettest such five-month period since 1895. This area includes the panhandle of Texas, the western half of Oklahoma, all except extreme southeastern Kansas, northeastern Colorado, and southern and western Nebraska.

SOUTH REGION PRECIPITATION FEBRUARY, 1895–1999

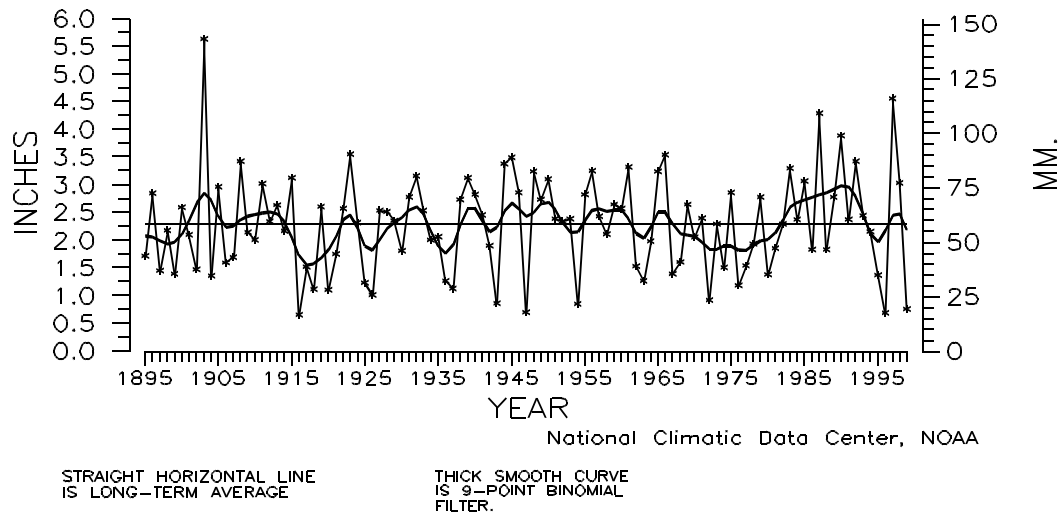


Figure 11: Preliminary data ranked February 1999 as the fourth driest such period on record for the South Region. The South Region includes Arkansas, Kansas, Louisiana, Mississippi, Oklahoma, and Texas.

NORTHWEST REGION PRECIPITATION FEBRUARY, 1895–1999

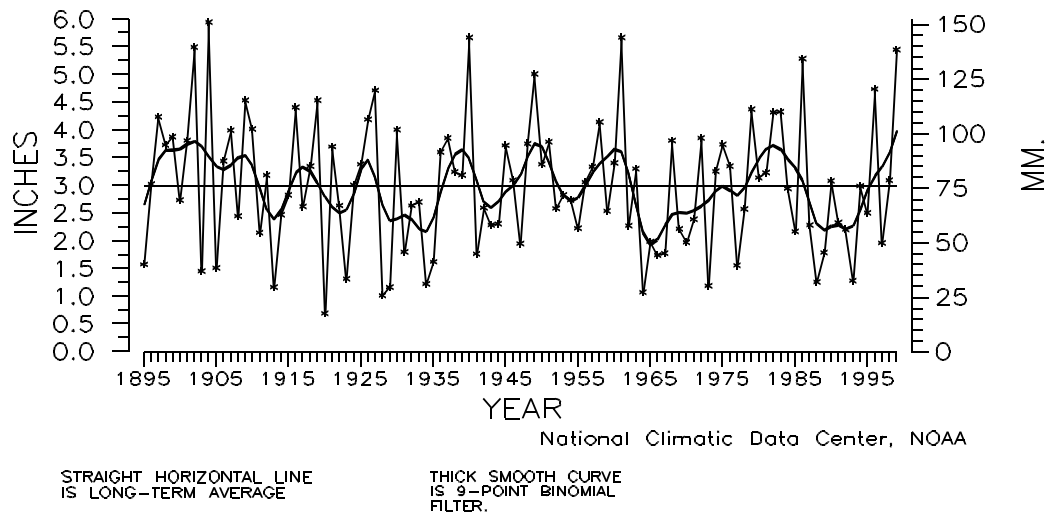


Figure 12: Preliminary data ranked February 1999 as the fifth wettest such month on record for the Northwest Region. The Northwest Region includes Idaho, Oregon, and Washington.

WEST-NORTH CENTRAL REGION TEMPERATURE FEBRUARY, 1895-1999

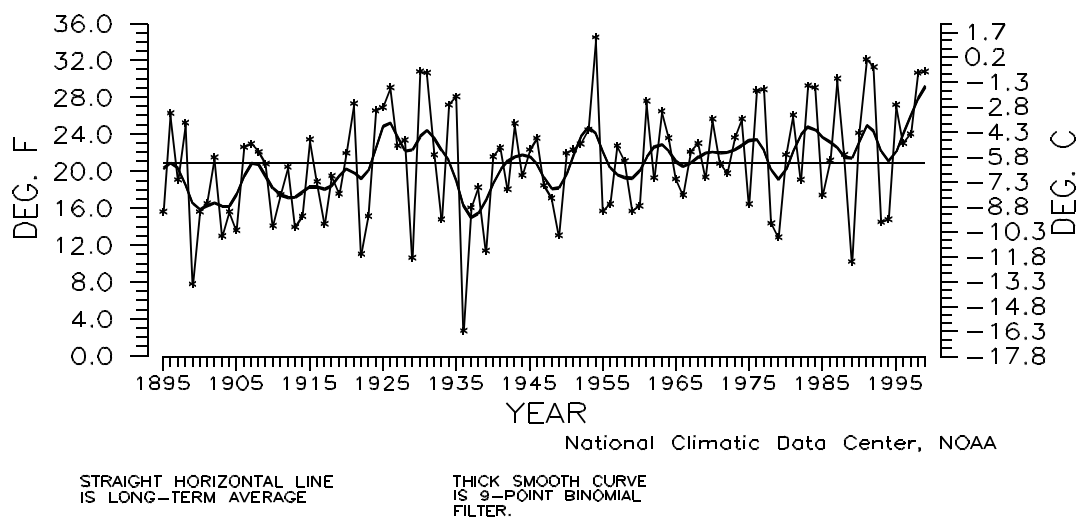


Figure 13: Preliminary data ranked February 1999 as the fifth warmest such period on record for the West-North Central Region. The West-North Central Region includes Montana, Nebraska, North Dakota, South Dakota, and Wyoming.

NORTHWEST REGION TEMPERATURE FEBRUARY, 1895-1999

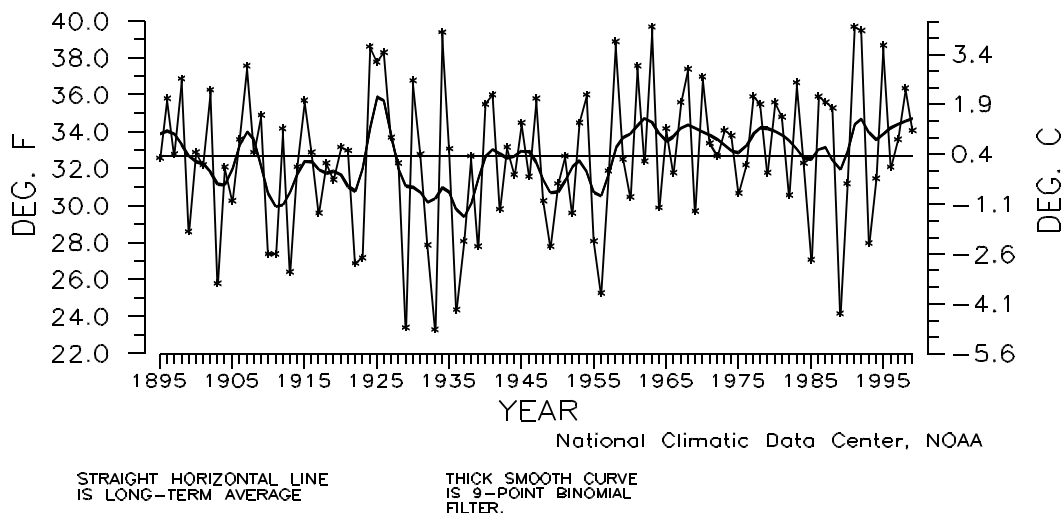


Figure 14: Preliminary data ranked February 1999 as the 39th warmest such month on record for the Northwest Region.

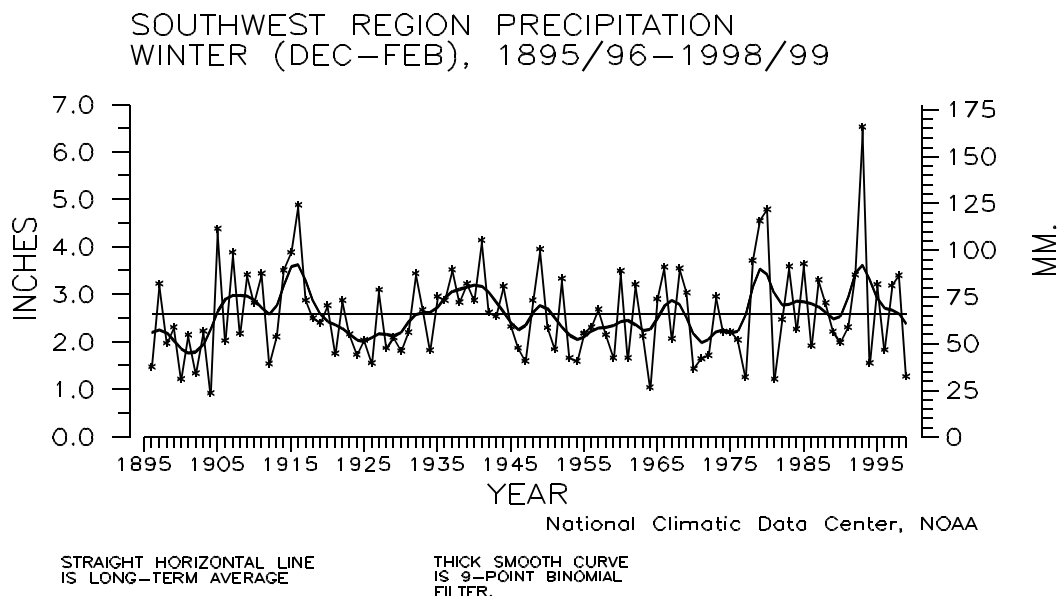


Figure 15: Preliminary data ranked Winter (Dec-Feb) 1998-99 as the sixth driest such winter season on record for the Southwest Region. The Southwest Region includes Arizona, Colorado, New Mexico, and Utah. For much of the Winter season, the active storm track was north of the four-corners region.

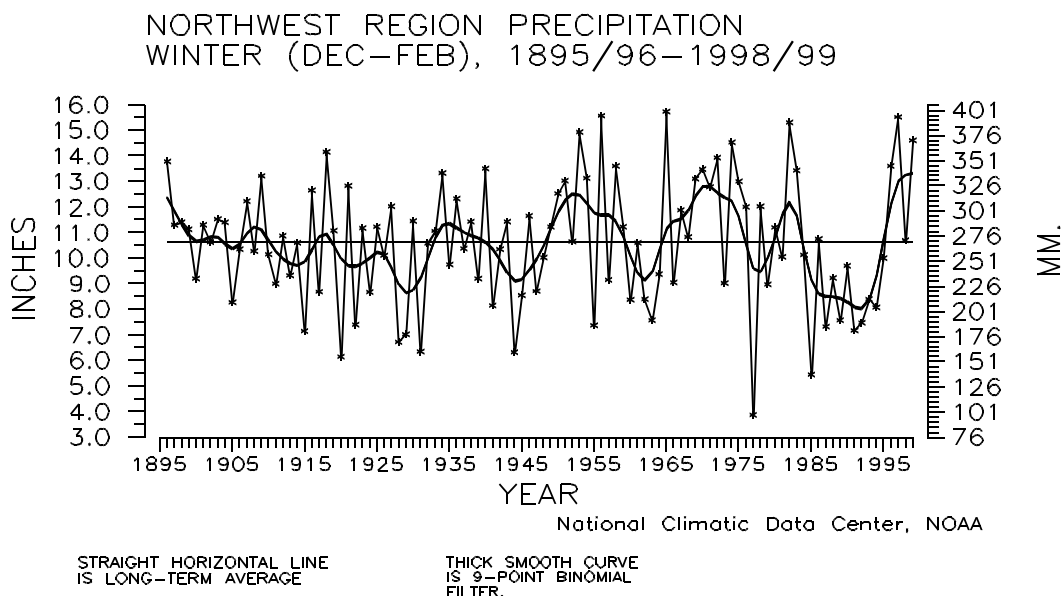


Figure 16: Preliminary data ranked Winter (Dec-Feb) 1998-99 as the sixth wettest such Winter season on record for the Northwest Region. Three of the last four such seasons have been much above the long-term mean. For much of the Winter season, the active storm track brought Pacific-borne storms directly onshore from points in central California, northward. The Northwest Region includes Idaho, Oregon, and Washington.

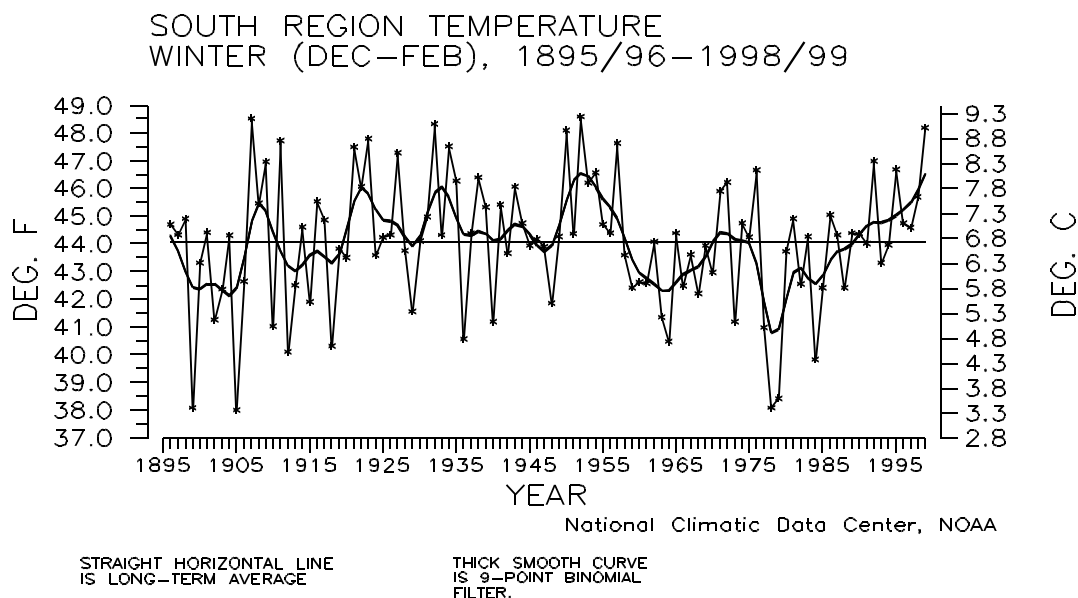


Figure 17: Preliminary data ranked Winter (Dec-Feb) 1998-99 as the fourth warmest such Winter season on record for the South Region. The last five such seasons have averaged above the long-term mean. For much of the Winter 1998-99 season, the active storm track was north of the region and prevented cold air outbreaks from moving southward from Canada and the Arctic.

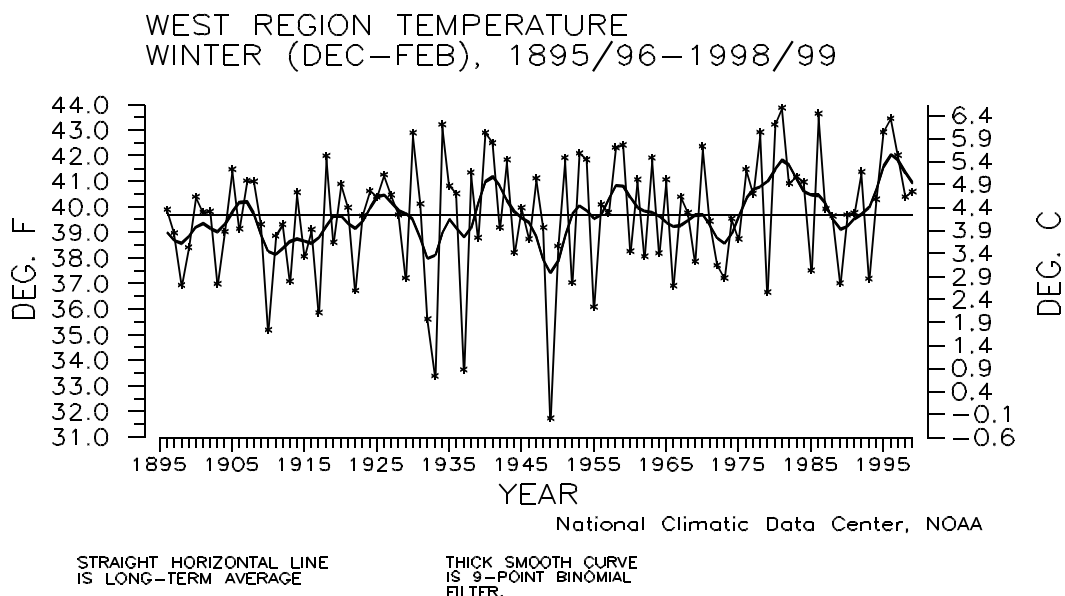
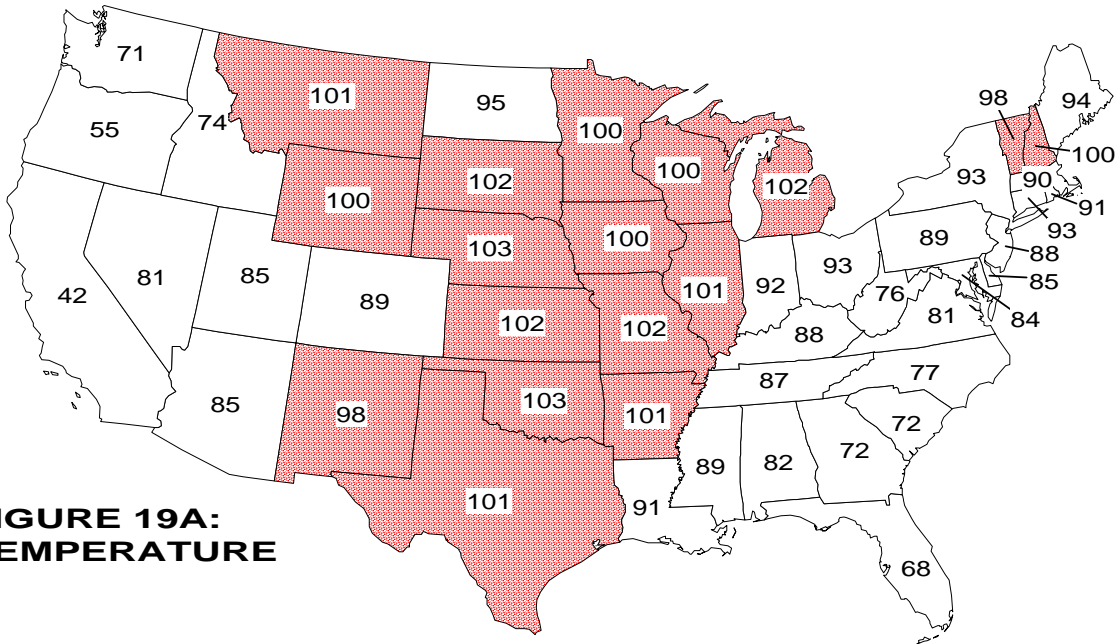
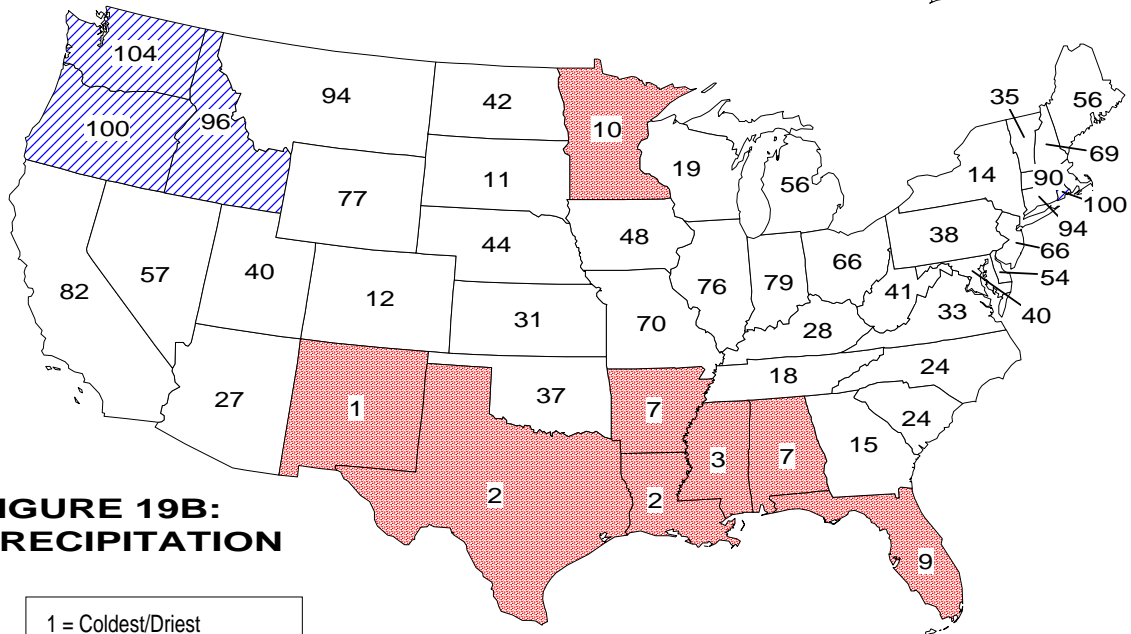


Figure 18: Preliminary data ranked Winter (Dec-Feb) 1998-99 as the 37th warmest such Winter season on record for the West Region. For much of the Winter, the active storm track was north of the region and prevented cold air outbreaks from moving onshore from the much-colder regions of the North Pacific or prevented cold Canadian air from migrating southwestward from areas east of the Rockies. The last six such seasons have averaged above the long-term mean. The West Region includes California and Nevada.

FEBRUARY 1999 STATEWIDE RANKS



**FIGURE 19A:
TEMPERATURE**



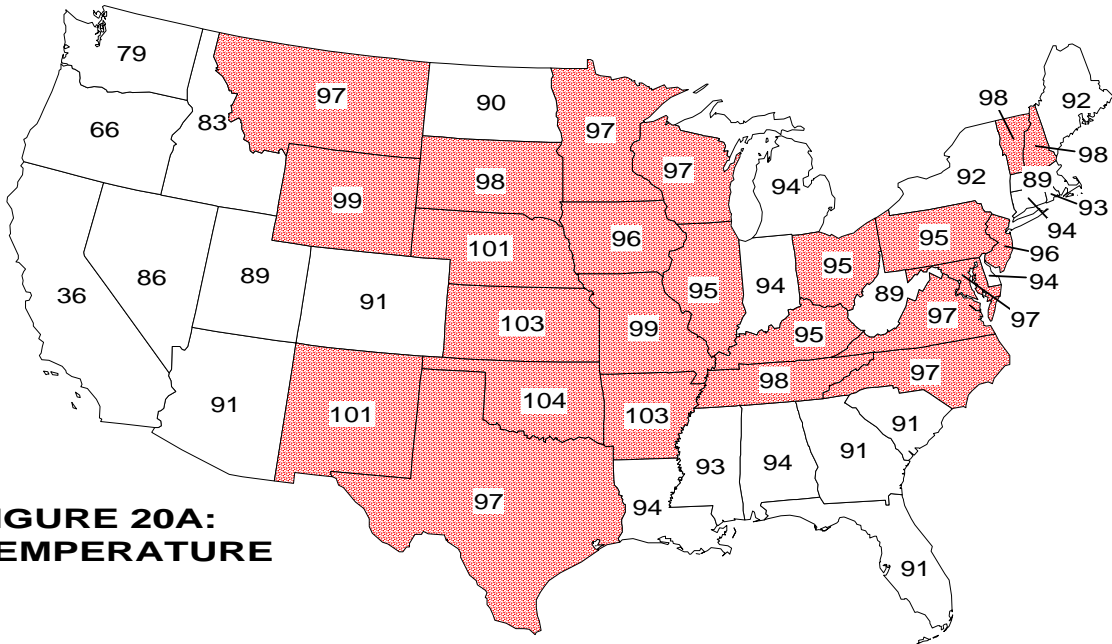
**FIGURE 19B:
PRECIPITATION**

1 = Coldest/Driest
105 = Warmest/Wettest

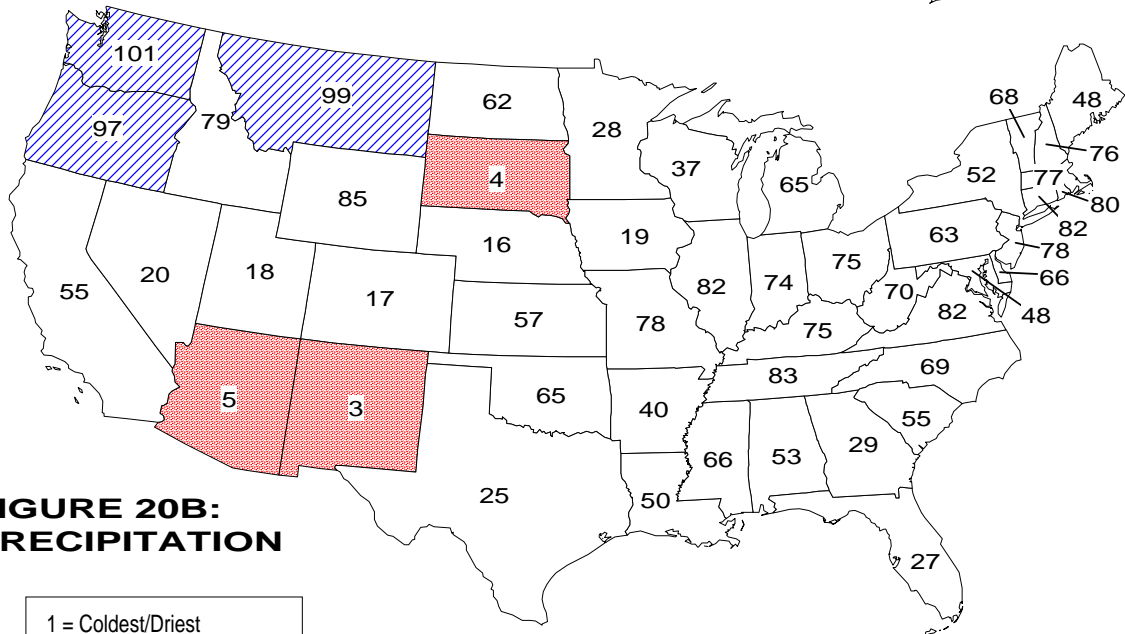
National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1999. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 96-105) are shaded.

DEC 1998 - FEB 1999 STATEWIDE RANKS



**FIGURE 20A:
TEMPERATURE**



**FIGURE 20B:
PRECIPITATION**

1 = Coldest/Driest
104 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1999. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 95-104) are shaded.

Figure 19A shows, in illustrative map form, the February 1999 statewide temperature ranks. Seventeen states, all in the central portion of the country or in New England, were within the top ten warm portion of the historical distribution while twenty-eight others ranked within the warm third of the historical distribution. No state was within the cool third of the distribution.

Figure 19B shows the February 1999 state ranks for precipitation. Four states ranked within the top ten wet portion of the distribution while seven others ranked within the wet third portion of the distribution. Eight states also ranked within the top ten dry portion of the historical distribution while 13 others ranked within the dry third. ***It should be noted that these February state precipitation ranks are preliminary and should be used with considerable caution due to the high variability of precipitation on a small space and time scale.***

Figure 20A shows, in illustrative map form, the Winter (Dec-Feb) state ranks for temperature. Twenty-four states ranked within the top ten warm portion of the historical distribution including the warmest winter season on record for Oklahoma and the second warmest such three-month period since 1895 for both Arkansas and Kansas. It was also the fourth warmest winter season on record for Nebraska and New Mexico. Twenty-two other states ranked within the warm third of the distribution. No state was within the cool third of the distribution.

Figure 20B shows the Winter season statewide precipitation ranks. Three states had their tenth wettest or wetter Winter season (Dec-Feb) since 1895 including the fourth wettest winter season on record for Washington, the sixth wettest winter since 1895 for Montana, and the eighth wettest winter season on record for Oregon. Fifteen other states ranked within the wet third portion of the distribution. Three states ranked within the top ten dry portion of the distribution including the third driest winter on record for New Mexico, the fourth driest winter on record for South Dakota, and the fifth driest winter season on record for Arizona. Nine other states ranked within the dry third portion of the distribution for the three-month period.

It should be emphasized that all of the temperature and precipitation ranks on these maps and in Table 1, 3, and 5 are based on preliminary data. The ranks will change when the final data are processed.